IN THE UNITED STATES OF AMERICA
PATENT AND TRADEMARK OFFICE

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SERIAL NO.: 10/099,045

ART UNIT: 3723

TITLE: Granular Particle Gripping Surface

FILING DATE: March 14, 2002

ATTY. DOCKET: 16342/95351-00

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AMENDMENT AFTER ALLOWANCE

Please amend the claims as follows. The only change is for the purpose of correcting the dependency of claims 33-35. Claim 33 previously depended from itself and was obviously in error.

1(original). A method of gripping an oilfield tubular member without damaging said tubular member, comprising the steps of:

a. providing an oilfield tubular member;

b. providing a tubular gripping system which includes a die body shaped to be inserted into a said tubular gripping system, said die body being produced by the steps of :

i. providing a metal backing surface formed on said die body, said metal having a first hardness;

ii. coating at least a portion of said backing surface a granular particle coating and a brazing matrix;

iii. heating said die body until said brazing matrix melts, thereby adhering said granular particles to said backing surface and softening said metal to a second lesser hardness; and

c. placing an axial and/or radial load on said die body sufficient to embed a portion of said granular particles in said granular particle coating into said backing surface.

2(original). A method according to claim 1, wherein said step of heating said die body includes heating said die body at a temperature of about 150 °C to about 1400 °C.

3(original). A method according to claim 1, wherein said step of heating said die body includes heating said die body at a temperature of about 600 °C to about 1400 °C.

4(original). A method according to claim 1, wherein said step of providing a tubular member includes providing a tubular member which has a hardness of at least approximately 18 HRC.

5(original). A method according to claim 4, wherein said step of providing a gripping system includes providing a soften backing surface which has a hardness of approximately 70 HRB.

6(original). A method according to claim 1, wherein said step of placing an axial load is insufficient to reduce the diameter of said tubular member.

7(original). The method of claim 1, wherein said step of providing a tubular gripping system includes providing an arcuate shaped die and a granular particle coating formed of a refractory metal.

8(original). The method of claim 1, wherein said step of providing a tubular gripping system includes providing a power tong tool for gripping tubular members.

9(original). The method of claim 1, wherein said step of providing a tubular gripping system includes providing a conventional slip assembly for gripping tubular members.

10(original). The method of claim 7, wherein said step of providing an arcuate shaped die includes selecting said refractory metal from the group consisting of the carbides of silicon, tungsten, molybdenum, chromium, tantalum, niobium, vanadium, titanium, zirconium, and boron.

11(original). The method of claim 1, wherein said step of providing a gripping system includes forming said granular particle coating from granular particles in the size range of approximately 300 to approximately 420 microns.

12(original). The method of gripping an oilfield tubular according to claim 1, wherein said step of heating includes heating said metal matrix to a temperature sufficient to cause said metal matrix to reach at least a semi-solid state.

13(original). A method for producing a die insert for engaging tubular members comprising the steps of:

a. providing a metal die body having a first hardness and an arcuate shape corresponding to the curvature of an oilfield tubular member having a standard diameter, said die body further having a backing surface formed thereon;

b. coating at least a portion of said backing surface a granular particle coating and a brazing matrix; and

c. heating said die body until said brazing matrix melts, thereby adhering said granular particles to said backing surface and softening said metal to a second lesser hardness, such that said backing surface may engage an oilfield tubular member with sufficient force to embed said granular particles in said backing surface without reducing the standard diameter of the tubular member.

14(original). A method according to claim 13, wherein said step of heating said die body includes heating said die body at a temperature of about 150 °C to about 1400 °C.

15(original). A method according to claim 13, wherein said step of heating said die body includes heating said die body at a temperature of about 600 °C to about 1400 °C.

16(original). The method according to claim 13, wherein said step of providing a die body includes providing a die body having a concave arcuate shape for gripping the outer perimeter of a tubular member.

17(original). The method according to claim 13, wherein said step of providing a die body includes providing a die body having a convex arcuate shape for gripping the inside perimeter of a tubular member.

18(original). The method according to claim 13, wherein said step of heating includes heating said granular particle coating and said a brazing matrix to a temperature sufficient to cause said brazing matrix to reach at least a semi-solid state.

19(original). The method according to claim 13, wherein said heating step includes heating said backing surface sufficiently to obtain a hardness of approximately 70 HRB.

20(original). The method according to claim 13, wherein said granular particle coating includes a refractory metal from the group consisting of the carbides of silicon, tungsten, molybdenum, chromium, tantalum, niobium, vanadium, titanium, zirconium, and boron.

21(original). A method for producing a die insert for engaging tubular members comprising the steps of:

a. providing a metal die body shaped to be inserted into a tubular gripping system, said die body including a gripping surface having a series of raised teeth;

b. applying a granular particle coating and a brazing matrix to a portion of said raised teeth which engage a tubular member;

c. heating said raised teeth sufficiently to melt said brazing matrix; and

d. subjecting said die to a quench and temper process after said heating step.

22(original). A method according to claim 21, wherein said granular particle coating is applied to substantially all of said gripping surface.

23(original). A method according to claim 21, wherein said granular particle coating is approximately 0.25 mm in thickness.

24(original). A method according to claim 21, wherein said granular particle coating includes particles having a size range from approximately 145 to approximately 165 microns.

25(original). A method according to claim 21, further subjecting said die to a carburization and heat treating process prior to applying said granular particle coating.

26(original). A method according to claim 21, wherein said quench and temper process is conducted to provide said die insert with a hardness of approximately 58 to 62 HRC.

27(original). A die insert for engaging tubular members produced by the process comprising the steps of:

a. providing a metal die body having a first hardness and an arcuate shape corresponding to the curvature of an oilfield tubular member having a standard diameter, said die body further having a backing surface formed thereon;

b. coating at least a portion of said backing surface a granular particle coating and a brazing matrix;

c. heating said die body until said brazing matrix melts, thereby adhering said granular particles to said backing surface and softening said metal to a second lesser hardness; and

d. thereby producing a die with a softened metal body such that said backing surface may engage an oilfield tubular member with sufficient force to embed said granular particles in said backing surface without reducing the standard diameter of the tubular member.

28(original). A method according to claim 1, wherein said step of providing a gripping system includes providing a coil tubing injector.

29(original). A method according to claim 1, wherein said step of providing a gripping system includes providing a pipe spinner apparatus.

30-31 (canceled)

32(original). A method for producing a die insert for engaging tubular members comprising the steps of:

a. providing a metal die body having an arcuate shape corresponding to the curvature of an oilfield tubular member having a standard diameter, said die body further having a metal backing surface with a first hardness formed thereon;

b. coating at least a portion of said backing surface with a granular particle coating having a second hardness greater than said first hardness; and

c. adhering said granular particle coating to said backing surface such that said backing surface may engage an oilfield tubular member with sufficient force to embed said granular particles in said backing surface without reducing the standard diameter of the tubular member.

33(currently amended). The method according to claim ~~33~~ 32, wherein said step of adhering said granular particle coating to said backing surface is accomplished using a low temperature curing adhesive.

34(currently amended). The method according to claim ~~33~~ 32, wherein said step of adhering said granular particle coating to said backing surface is accomplished using a brazing matrix with a melting point less than approximately a transformation starting temperature for said metal backing surface.

35(currently amended). The method according to claim ~~33~~ 32, wherein said step of adhering said granular particle coating to said backing surface is accomplished using a thermal spray process wherein a molten metallic brazing matrix mixed with granular particles is sprayed onto said backing surface in a manner which does not raise the temperature of said backing surface above a transformation temperature for said metal backing surface.

Respectfully Submitted,

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Tina D. Mathy